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GUIDELINES ON A SYSTEMATIC DECISION MAKING METHODOLOGY FOR THE PAVEMENT REHABILITATION

Slovenko Henigman - DDC Consulting Engineering Ljubljana
Task 2.3 leader

Ljubljana, Slovenija



Contents

1. Road network and road quality in the countries of Central and Eastern Europe
2. Project objective
3. Questionnaire
4. Assessment of the condition of pavement structures
5. Methodology for systematically determining measures
6. Presentation of examples
7. Rehabilitation and technical procedures
8. Conclusion

Condition of pavement structures



Project objective

- Preparing the methodology for simple determining of measures on roads with smaller traffic volumes
- Roads with less traffic volume = < 300 passages of 100 kN
- Participating countries: Poland, Slovakia, Czech Republic, Hungary and Slovenia
- The total length of roads in these countries is roughly 300.000 km

Traffic loads in individual CEE countries

Country	Motorways + main roads			Regional roads			Lokal roads		
	km	Daily ESAL 100 kN		km	Daily ESAL 100 kN		km	Daily ESAL100 kN	
		> 300 [%]	≤ 300 [%]		> 300 [%]	≤ 300 [%]		> 300 [%]	≤ 300 [%]
Slovenia	1.417	65	35	4.997	4	96	13.811	N/A	N/A
Slovakia	3.738	93	7	14.144	36	64	25.942	N/A	N/A
Czech Republic	6.805	94	6	48.778	4	96	N/A	N/A	N/A
Hungary	7.601	85	15	20.981	4	96	139.818	N/A	N/A
Poland	16.811	61	39	N/A	N/A	N/A	N/A	N/A	N/A

Questionnaire



Data on the road network

Traffic data with regard to the road network

- *density, traffic loading*
- *total permitted weight*
- *permitted axle load etc.*

Pavement management

- *measurements and equipment: longitudinal and transverse roughness*
- *skid resistance*
- *bearing capacity and*
- *assessment of the pavement condition*

Questionnaire

Presentation of typical pavement structures for:

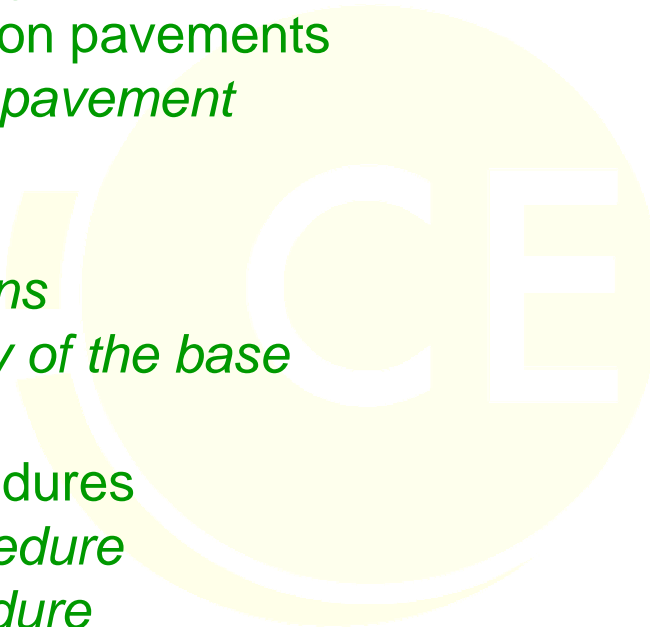
- flexible pavements and
- rigid and semi-rigid pavements

Selection of measures on pavements

- *condition of the pavement*
- *traffic loading*
- *design period*
- *climate conditions*
- *bearing capacity of the base*
- *other*

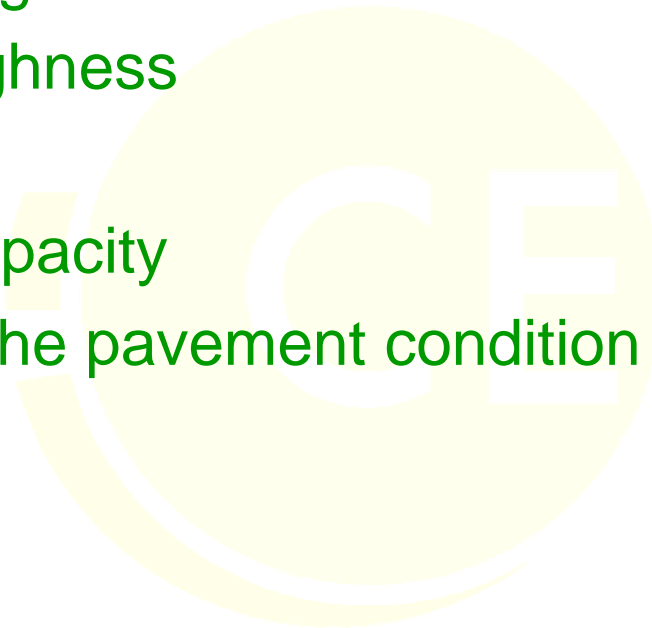
Structural design procedures

- *theoretical procedure*
- *empirical procedure*
- *standardised procedure.*



Assessment of the condition of pavement structures

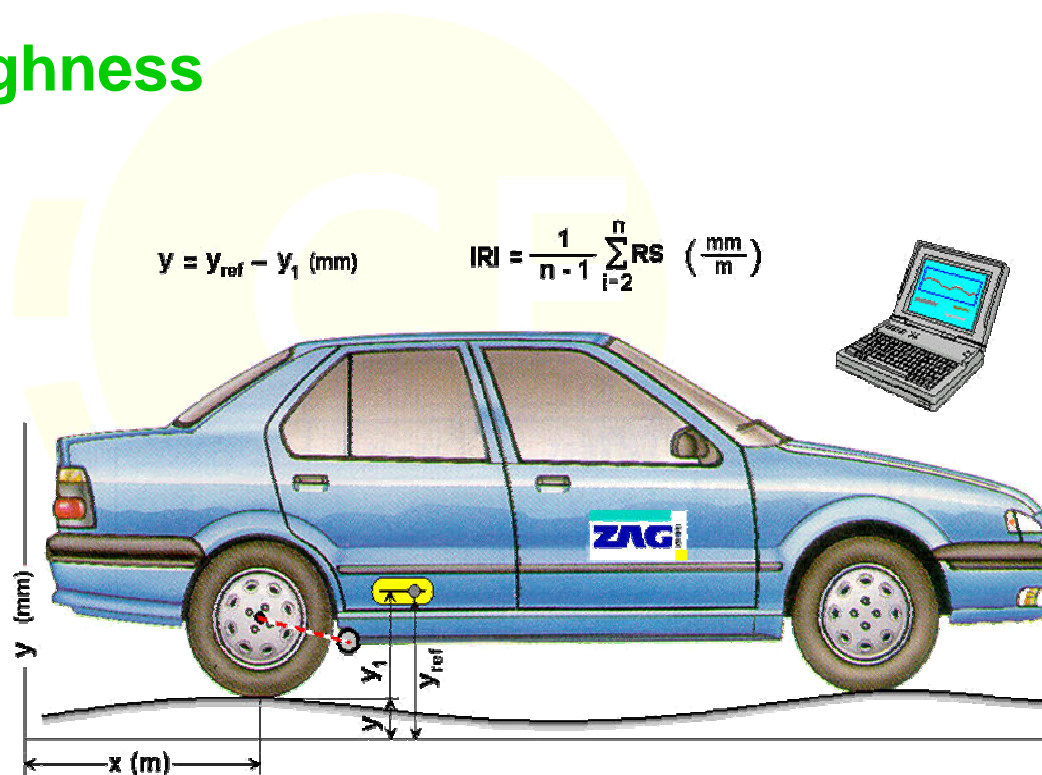
- Longitudinal roughness
- Transverse roughness
- Skid resistance
- Load bearing capacity
- Assessment of the pavement condition



Assessment of the condition of pavement structures

Types of measurements:

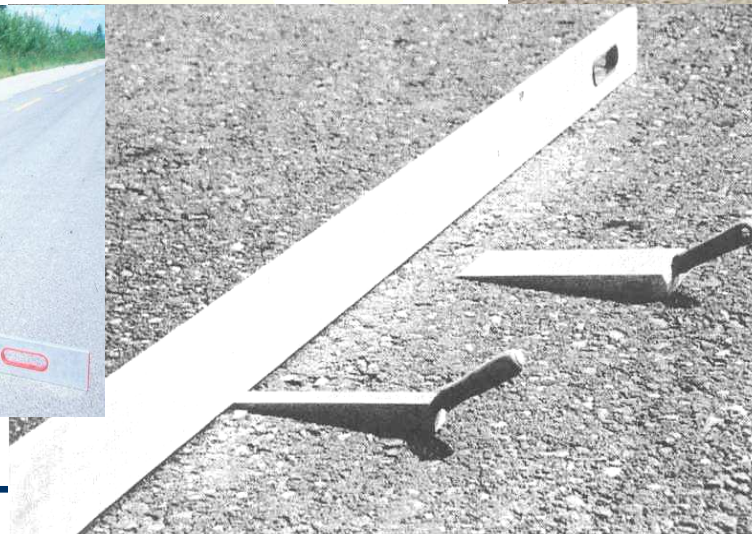
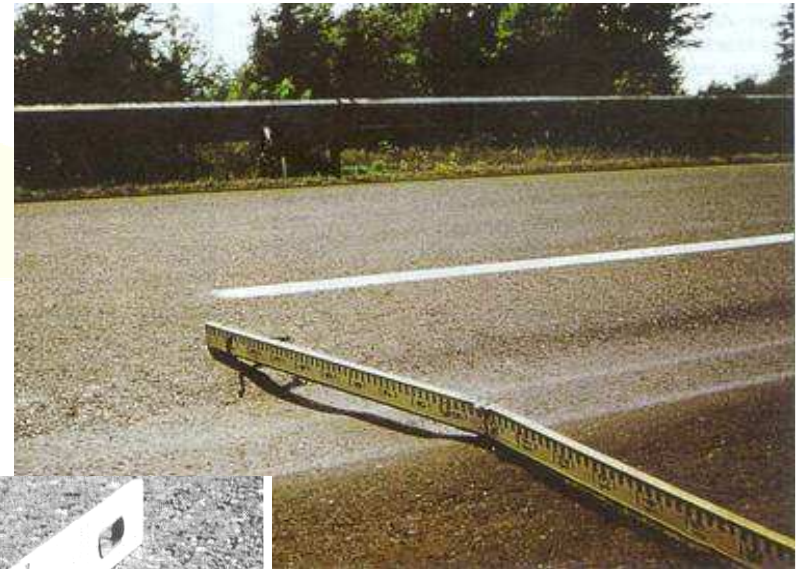
Longitudinal roughness



Assessment of the condition of pavement structures

Types of measurements:

Transverse roughness



Assessment of the condition of pavement structures

Types of measurements:

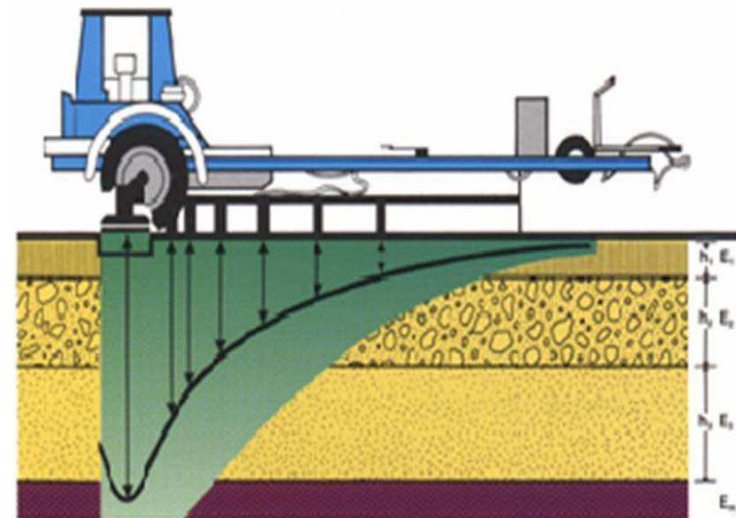
Skid resistance



Assessment of the condition of pavement structures

Types of measurements:

Load bearing capacity



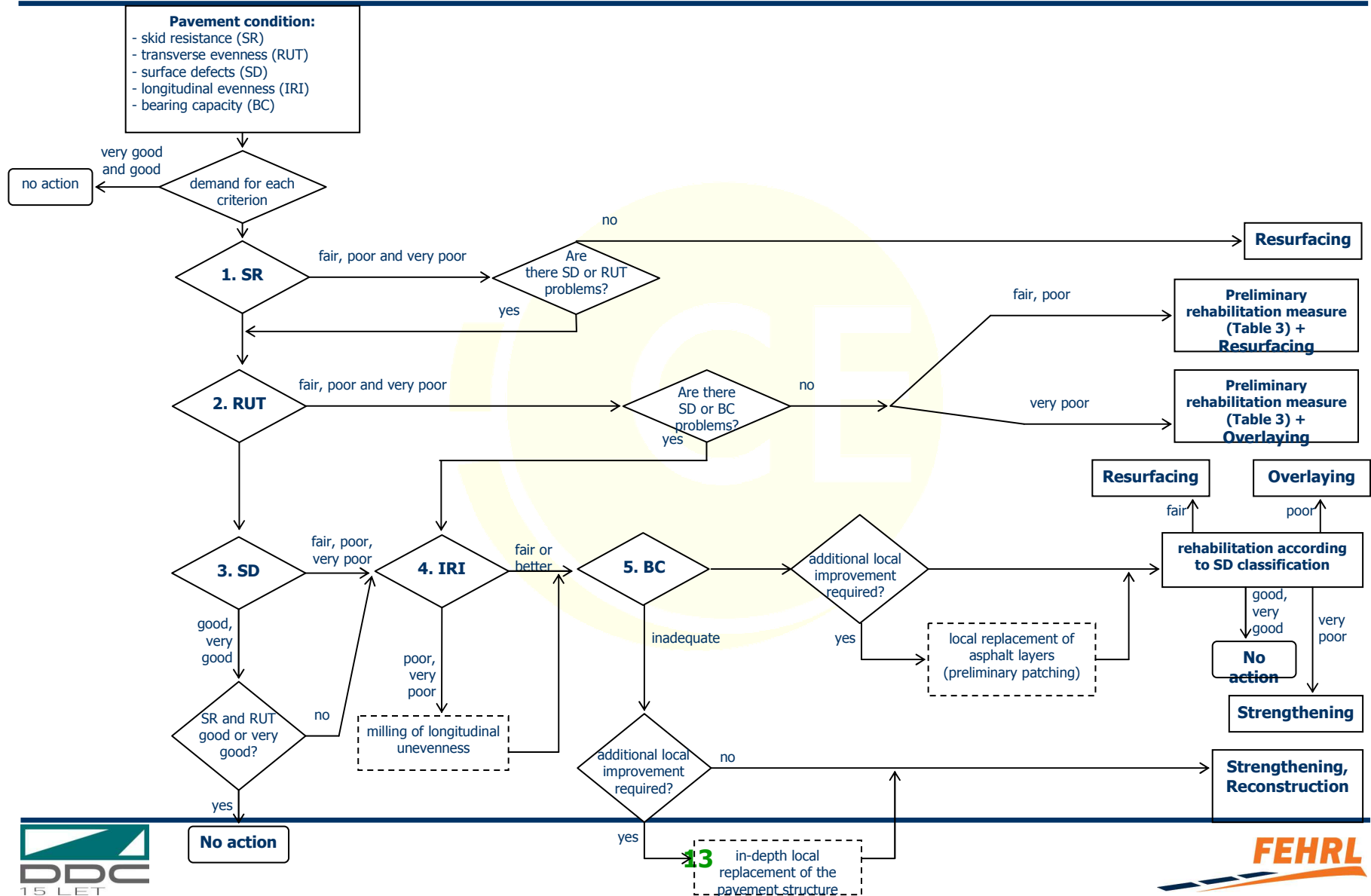
Assessment of the condition of pavement structures

Types of measurements:

Assessment of the pavement condition



Methodology for systematically determining measures

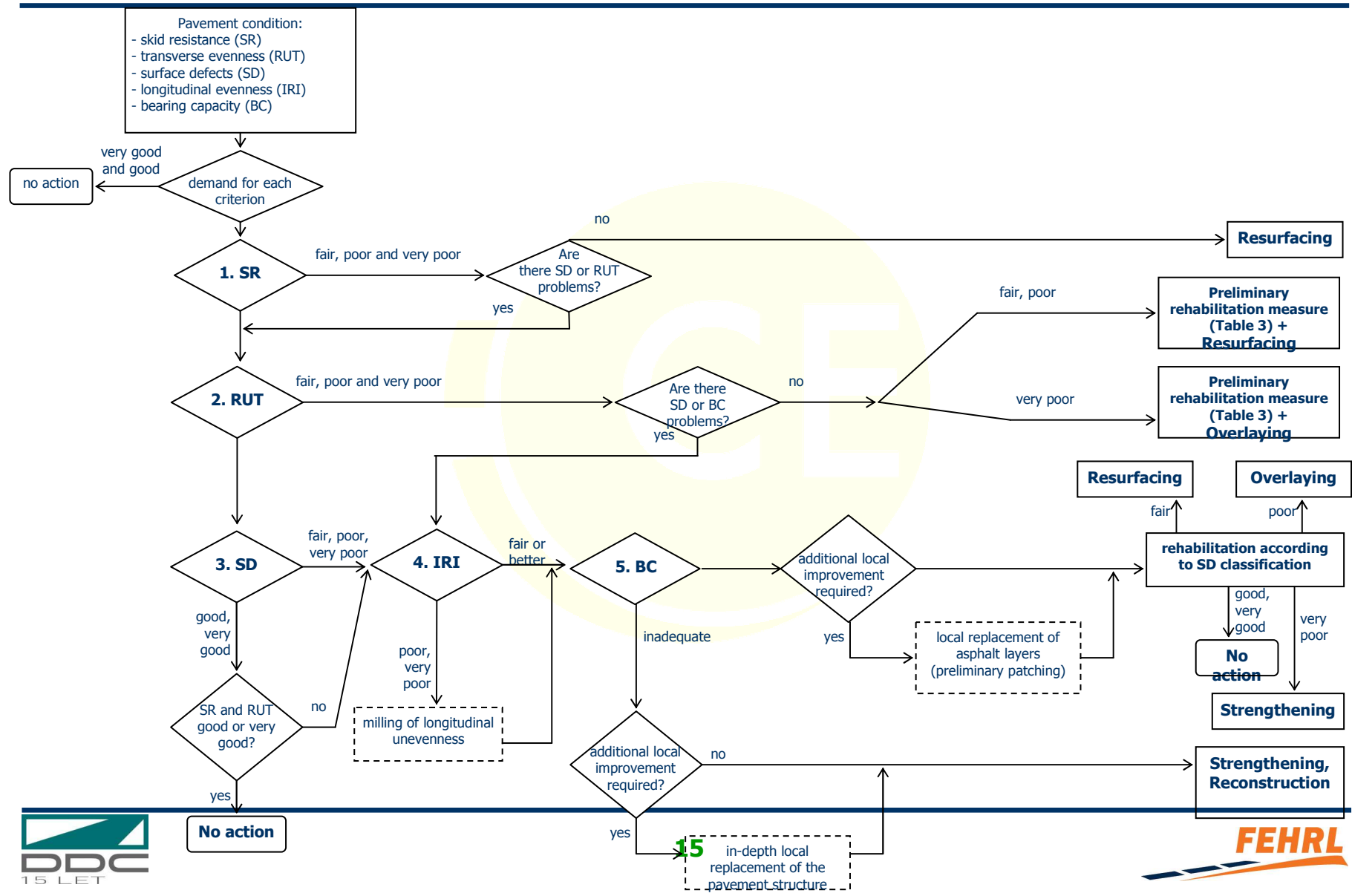


EXAMPLES

The condition of the pavement is as follows:

- Pavement type (regional road)
- Skid resistance → very poor
- Transverse roughness → good
- Condition of pavement → at border
- Longitudinal roughness → very good
- Load bearing capacity → adequate





EXAMPLES

The condition of the pavement is as follows

- Skid resistance → very poor
- Transverse roughness → poor
- Condition of pavement → very poor
- Longitudinal roughness IRI → very poor
- Load bearing capacity → inadequate



Rehabilitation procedures and reconstruction techniques



Improving surface characteristics

Resurfacing

Reinforcement



Rehabilitation procedures and reconstruction techniques



Improving surface characteristics

- Surface treatment



Rehabilitation procedures and reconstruction techniques

Improving surface characteristics

- Surface dressing



Rehabilitation procedures and reconstruction techniques

Improving surface characteristics

- Thin-layered dressing



Rehabilitation procedures and reconstruction techniques

Resurfacing

- AC surf
- SMA
- PA



Rehabilitation procedures and reconstruction techniques

Reinforcement

- Asphalt layers AC bin + AC surf
- Unbound and bound:
- Recycling existing layers



CONCLUSION

The methodology is useful for all kinds of pavements, especially for low volume roads

Translation in languages of participating countries is anticipated

Use for the general network level; each country must provide appropriate procedures for the project level